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WONG, ALLEN C	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/762,736	Applicant(s) LAINEMA ET AL.
	Examiner Allen Wong	Art Unit 2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 September 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *33-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *33-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/14/07 has been entered.

Response to Arguments

2. Applicant's arguments filed 9/14/07 have been fully read and considered but they are not persuasive.

Regarding lines 9-14 on page 7 of applicant's remarks, applicant states that Yu and Yagasaki do not disclose determining the accuracy of the motion coefficients using which the motion coefficients are quantized based on the prediction error quantizer. The examiner respectfully disagrees. As disclosed in column 13, lines 24-36, Yagasaki discloses the range of accuracy values of the motion coefficients obtained from the motion vectors in that the motion vectors needed a plurality of values for accurate estimation and quantization assignment and determination for predicting the motion coefficients for accurately transmitting encoded video data and displaying, decoding video data. Thus, Yagasaki does teach the determination of the accuracy of the motion coefficients using which the motion coefficients are quantized based on the prediction error quantizer. Therefore, it would have been obvious to one of ordinary skill in the art

to combine the teachings of Yu and Yagasaki, as a whole, for accurately, efficiently encoding and decoding image data while maintaining high image quality and minimizing hardware requirements, as suggested in Yagasaki's column 3, lines 54-61.

Regarding lines 10-12 on page 8 of applicant's remarks, applicant states that there is no suggestion in Yagasaki that the accuracy of the motion vectors is determined based on the quantization step used for dequantizing the prediction error transform coefficients. The examiner respectfully disagrees. As disclosed in column 13, lines 24-36, Yagasaki discloses the range of accuracy values of the motion coefficients obtained from the motion vectors in that the motion vectors needed a plurality of values for accurate estimation and quantization assignment and determination for predicting the motion coefficients for accurately transmitting encoded video data and displaying, decoding video data. Thus, Yagasaki does teach the determination of the accuracy of the motion coefficients using which the motion coefficients are quantized based on the prediction error quantizer. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Yu and Yagasaki, as a whole, for accurately, efficiently encoding and decoding image data while maintaining high image quality and minimizing hardware requirements, as suggested in Yagasaki's column 3, lines 54-61.

Regarding lines 16-17 on page 8 of applicant's remarks, applicant states that there is no discussion that the accuracy of motion vectors is determined based on the quantizer step size. The examiner respectfully disagrees. As disclosed in column 13, lines 24-36, Yagasaki discloses the range of accuracy values of the motion coefficients obtained from the motion vectors in that the motion vectors needed a plurality of values

for accurate estimation and quantization assignment and determination for predicting the motion coefficients for accurately transmitting encoded video data and displaying, decoding video data. Thus, Yagasaki does teach the determination of the accuracy of the motion coefficients using which the motion coefficients are quantized based on the prediction error quantizer. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Yu and Yagasaki, as a whole, for accurately, efficiently encoding and decoding image data while maintaining high image quality and minimizing hardware requirements, as suggested in Yagasaki's column 3, lines 54-61.

The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one of ordinary skill in the art to combine the teachings of Yu and Yagasaki, as a whole, for accurately, efficiently encoding and decoding image data while maintaining high image quality and minimizing hardware requirements, as suggested in Yagasaki's column 3, lines 54-61.

Thus, the limitations of independent claims 33, 35, 37 and 39 are met by the combination of Yu and Yagasaki. Dependent claims 34, 36 and 38 are rejected for similar reasons as claims 33, 35 and 37, respectively.

Thus, the rejection is maintained.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 33-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yu (6,256,347) in view of Yagasaki (5,428,396).

Regarding claim 33, Yu method for decoding encoded video information (fig.10), the encoded video information comprising quantized motion coefficients and quantized prediction error coefficients (fig.10, element 62 decodes the MPEG encoded video information including quantized motion and prediction error information as encoded from the encoder end, as shown in fig.1-2), said quantized motion coefficients representing the motion of a picture element with respect to a piece of reference video information (fig.10, note motion vectors are decoded by VLD 62, in that motion vector information includes data from previous reference frames, future frames and current frames), said quantized prediction error coefficients representing a piece of prediction error video information (figs.1-2), the method comprising:

determining a prediction error quantizer from the encoded video information, the prediction error quantizer using which the prediction error coefficients are quantized (fig.1, element 26 is a dequantizer for determining the prediction error quantizer from the encoded video data, as determined from the encoding end of element 20 in fig.1-2,

in which element 27 determines the prediction error and element 28 takes the data from processor 27 to determine the prediction error quantizer);

performing inverse quantization of the quantized motion coefficients (fig.10, element 64 inversely quantize motion coefficients);

forming prediction video information for the picture element from the piece of reference video information, using the inverse quantized motion coefficients (fig.10, note element 62 then sends motion vectors and motion of picture elements to the adder 68, where the motion compensated motion vector data is and the inversely quantized, with quantization step size control, and inversely discrete cosine transformed motion data is added at element 68); and

performing inverse quantization of the quantized prediction error coefficients using an inverse quantizer corresponding to said prediction error quantizer (fig.10, element 64 inversely quantizes the predicted error coefficients that corresponds to the assigned quantizer value from the encoding end).

Yu does not specifically disclose determining the accuracy of the motion coefficients using which the motion coefficients are quantized based on the prediction error quantizer. However, Yagasaki teaches the determination of the accuracy of the motion coefficients using which the motion coefficients are quantized based on the prediction error quantizer (col.13, ln.24-36, Yagasaki discloses the ranging accuracy values of the motion coefficients obtained from the motion vectors). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Yu and Yagasaki, as a whole, for accurately, efficiently encoding and decoding image data

while maintaining high image quality and minimizing hardware requirements (Yagasaki col.3, ln.54-61).

Regarding claim 34, Yu discloses further comprising receiving signaling information indicating the selected motion coefficient quantizer (fig.10, element 62 receives and decodes the encoded video data including the selected motion coefficient quantizer value as assigned from the encoder end).

Regarding claim 35, Yu discloses a decoder for decoding encoded video information, the decoder comprises:

an input unit for receiving encoded video information from a video encoder (fig.1, element 12), the encoded video information comprising quantized motion coefficients and quantized prediction error coefficients (fig.10, element 62 decodes the MPEG encoded video information including quantized motion and prediction error information as encoded from the encoder end, as shown in fig.1-2), said quantized motion coefficients representing the motion of a picture element with respect to a piece of reference video information (fig.10, note motion vectors are decoded by VLD 62, in that motion vector information includes data from previous reference frames, future frames and current frames), said quantized prediction error coefficients representing a piece of prediction error video information (fig.1-2, element 20), the input unit is configured to:

determine a prediction error quantizer from the encoded video information, the prediction error quantizer using which the prediction error coefficients are quantized (fig.1, element 26 is a dequantizer for determining the prediction error quantizer from the encoded video data, as determined from the encoding end of element 20 in fig.1-2,

in which element 27 determines the prediction error and element 28 takes the data from processor 27 to determine the prediction error quantizer); and

a motion compensated predictor (fig.10, element 70) coupled to the input unit is configured to:

perform inverse quantization of the quantized motion coefficients (fig.10, element 64 inversely quantizes the motion coefficients);

form prediction video information for the picture element from the piece of reference video information, using the inverse quantized motion coefficients (fig.10, note element 62 then sends motion vectors and motion of picture elements to the adder 68, where the motion compensated motion vector data is and the inversely quantized, with quantization step size control, and inversely discrete cosine transformed motion data is added at element 68); and

perform inverse quantization of the quantized prediction error coefficients using an inverse quantizer corresponding to said prediction error quantizer (fig.10, element 64 inversely quantizes the predicted error coefficients that corresponds to the assigned quantizer value from the encoding end).

Yu does not specifically disclose determining the accuracy of the motion coefficients using which the motion coefficients are quantized based on the prediction error quantizer. However, Yagasaki teaches the determination of the accuracy of the motion coefficients using which the motion coefficients are quantized based on the prediction error quantizer (col.13, ln.24-36, Yagasaki discloses the ranging accuracy values of the motion coefficients obtained from the motion vectors). Therefore, it would

have been obvious to one of ordinary skill in the art to combine the teachings of Yu and Yagasaki, as a whole, for accurately, efficiently encoding and decoding image data while maintaining high image quality and minimizing hardware requirements (Yagasaki col.3, ln.54-61).

Regarding claim 36, Yu discloses further comprising receiving signaling information indicating the selected motion coefficient quantizer (fig.10, element 62 receives and decodes the encoded video data including the selected motion coefficient quantizer value as assigned from the encoder end).

Regarding claim 37, Yu discloses a computer software program stored on a computer-readable medium, the software program causing the computer to perform a method for decoding encoded video information, receiving the encoded video information comprising quantized motion coefficients and quantized prediction error coefficients (fig.10, element 62 decodes the MPEG encoded video information including quantized motion and prediction error information as encoded from the encoder end, as shown in fig.1-2), said quantized motion coefficients representing the motion of a picture element with respect to a piece of reference video information (fig.10, note motion vectors are decoded by VLD 62, in that motion vector information includes data from previous reference frames, future frames and current frames), said quantized prediction error coefficients representing a piece of prediction error video information (figs.1-2, element 20), the method comprising:

determining a prediction error quantizer from the encoded video information, the prediction error quantizer using which the prediction error coefficients are quantized (fig.1, element 26 is a dequantizer for determining the prediction error quantizer from the encoded video data, as determined from the encoding end of element 20 in fig.1-2, in which element 27 determines the prediction error and element 28 takes the data from processor 27 to determine the prediction error quantizer);

performing inverse quantization of the quantized motion coefficients (fig.10, element 64 inversely quantizes the motion coefficients);

forming prediction video information for the picture element from the piece of reference video information, using the inverse quantized motion coefficients (fig.10, note element 62 then sends motion vectors and motion of picture elements to the adder 68, where the motion compensated motion vector data is and the inversely quantized, with quantization step size control, and inversely discrete cosine transformed motion data is added at element 68); and

performing inverse quantization of the quantized prediction error coefficients using an inverse quantizer corresponding to said prediction error quantizer (fig.10, element 64 inversely quantizes the predicted error coefficients that corresponds to the assigned quantizer value from the encoding end).

Yu does not specifically disclose determining the accuracy of the motion coefficients using which the motion coefficients are quantized based on the prediction error quantizer. However, Yagasaki teaches the determination of the accuracy of the motion coefficients using which the motion coefficients are quantized based on the

prediction error quantizer (col.13, ln.24-36, Yagasaki discloses the ranging accuracy values of the motion coefficients obtained from the motion vectors). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Yu and Yagasaki, as a whole, for accurately, efficiently encoding and decoding image data while maintaining high image quality and minimizing hardware requirements (Yagasaki col.3, ln.54-61).

Regarding claim 38, Yu discloses further comprising receiving signaling information indicating the selected motion coefficient quantizer (fig.10, element 62 receives and decodes the encoded video data including the selected motion coefficient quantizer value as assigned from the encoder end).

Regarding claim 39, Yu discloses a receiver comprising a decoder for decoding encoded video information, wherein the decoder comprises:

an input unit for receiving encoded video information from a video encoder (fig.10 is a decoder for receiving encoded video information, where element 62 receives and decodes encoded video information), the encoded video information comprising quantized motion coefficients and quantized prediction error coefficients (fig.10, element 62 decodes the MPEG encoded video information including quantized motion and prediction error information as encoded from the encoder end, as shown in fig.1-2), said quantized motion coefficients representing the motion of a picture element with respect to a piece of reference video information (fig.10, note motion vectors are decoded by VLD 62, in that motion vector information includes data from previous reference frames,

future frames and current frames), said quantized prediction error coefficients representing a piece of prediction error video information (fig.10, element 60), the input unit is configured to:

determine a prediction error quantizer from the encoded video information, the prediction error quantizer using which the prediction error coefficients are quantized (fig.1, element 26 is a dequantizer for determining the prediction error quantizer from the encoded video data, as determined from the encoding end of element 20 in fig.1-2, in which element 27 determines the prediction error and element 28 takes the data from processor 27 to determine the prediction error quantizer); and

a motion compensated predictor (fig.10, element 70) coupled to the input unit is configured to:

perform inverse quantization of the quantized motion coefficients (fig.10, element 64 inversely quantizes the motion coefficients);

form prediction video information for the picture element from the piece of reference video information, using the inverse quantized motion coefficients (fig.10, note element 62 then sends motion vectors and motion of picture elements to the adder 68, where the motion compensated motion vector data is and the inversely quantized, with quantization step size control, and inversely discrete cosine transformed motion data is added at element 68); and

perform inverse quantization of the quantized prediction error coefficients using an inverse quantizer corresponding to said prediction error quantizer (fig.10, element 64

inversely quantizes the predicted error coefficients that corresponds to the assigned quantizer value from the encoding end).

Yu does not specifically disclose determining the accuracy of the motion coefficients using which the motion coefficients are quantized based on the prediction error quantizer. However, Yagasaki teaches the determination of the accuracy of the motion coefficients using which the motion coefficients are quantized based on the prediction error quantizer (col.13, ln.24-36, Yagasaki discloses the ranging accuracy values of the motion coefficients obtained from the motion vectors). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Yu and Yagasaki, as a whole, for accurately, efficiently encoding and decoding image data while maintaining high image quality and minimizing hardware requirements (Yagasaki col.3, ln.54-61).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen Wong whose telephone number is (571) 272-7341. The examiner can normally be reached on Mondays to Thursdays from 8am-6pm Flextime.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John W. Miller can be reached on (571) 272-7353. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Allen Wong
Primary Examiner
Art Unit 2621

AW
10/29/07